

## REMARKS

In response to the Examiner's rejections, Applicant has summarized the definitions of certain terminology, as understood by those skilled in the art, used in this application and in the prior art.

This information was not advanced at an earlier date because the applicant did not appreciate the nature of the Examiner's position until the applicant was advised in detail of that position because of the final rejection. The Applicant proposes amendments to the claims to conform them to the terminology employed by those skilled in the art, and as a result of Applicant's increased understanding of processes employed in synthesizing materials used in the invention. Support for the amendments is found at page 6, line 29, and page 8, line 17 of the specification. Applicant proposes no change in the device of the invention or in the process yielding the device of the invention, but continues to refine and clarify the characterization of the invention and the terminology used in its description.

The carbon precursor described in the specification is adapted, under appropriate conditions, to graphitize. Glassy carbon does not have this property. At the temperatures of firing of the invention (less than 1000°C, preferably 600°C – 700°C) it has been found that graphitization of graphitizable carbon (conversion into graphite) does not occur to a significant extent. Temperatures above 2000°C are required for graphitization, as is noted in U.S. Patent No. 6,814,765 to Rogers. Accordingly, the material produced according to previously disclosed procedures is now referred to as graphitizable material. It is also noted that the carbon precursor may form a carbon network according to the invention; graphite does not have this capability.

### 103 Rejections

1. The Examiner has rejected claims 12-21 as obvious in light of US 5,690,161 to Daussan, UD 5,785,851 to Morris, and US 5,520,823 to Jones. Claim 12 is the only independent claim. Claims 13-21 stand or fall with claim 12.

The Examiner cites Daussan as an example of a filter comprising a protruding frame and a plurality of sieve plates defining a reservoir chamber, and Morris as teaching a corrugated surface. The Examiner finally relies on Jones as teaching a bonded network of graphitized carbon and a ceramic raw material. Applicant respectfully disagrees.

Jones describes, according to the Abstract, "[a] reticular foam formed from a composition...a crystalline phase comprising graphite and wollastonite dispersed in a substantially amorphous matrix of borosilicate glass." The Jones patent clearly discloses the formulations for the borosilicate glass matrix (Column 2, Line 48-61). No carbon is mentioned. The matrix of the filter of the present invention differs by being solely composed of carbon.

Carbon present in the Jones filter is a) in the form of graphite (graphitic), and b) a dispersion phase. By definition, a dispersion phase is that which is dispersed in a matrix. It does not make up the matrix. The filter matrix phase of the present invention is the only component of the matrix and amorphous (non-graphitic).

A silicate glass is an amorphous structure composed of tetrahedrally coordinated silicon atoms, surrounded and bonded to covalently by oxygen atoms. An alkali borosilicate glass has a similar structure except that boric oxide ( $B_2O_3$ ) is added to the structure as well as alkali metal atoms (Ca, Mg, etc.) Carbon is not involved whatsoever. A carbon-bonded matrix is constructed solely from carbon atoms linked together in an array to form a three dimensional structure. There are no boron, silicon, oxygen, or alkali atoms involved. The two types of structures are completely different.

Jones therefore discloses a filter that is a borosilicate glass matrix containing some ceramic refractory particles and dispersed graphite. The present invention differs from Jones in that the present invention makes use of an amorphous (not glassy) carbon-carbon bonded matrix that contains dispersed refractory particles. The nature of the structures and the bonding of the two products are entirely dissimilar, most obviously on account of the fact that the matrix of the present invention does not contain borosilicate and also is not a glass. The references do not, alone or in combination, teach or suggest a network of graphitizable carbon. Claims 12-21 are not obvious in light of the references.

2. The Examiner has rejected claims 22-28 in light of WO 01/40414 to Rogers in combination with Daussan and Morris. Claim 22 is the only independent claim and claims 23-28 stand or fall with claim 22.

Claim 22 teaches a method for producing a filter including a plurality of sieve plates defining a reservoir chamber. The sieve plates comprise a non-porous bonded network of graphitizable carbon. Rogers teaches a porous carbon foam. Neither Daussan nor Morris

teaches a composition for plates. None of the combined references, therefore, teaches the graphitizable carbon that is an element of claim 22. Claims 22-28 are therefore not obvious in light of the combination of Rogers, Daussan and Morris, and are thus allowable.

In light of the above, Applicant respectfully submits that claims 12-28 are patentable over the prior art. Applicant requests entry of the amendments to the claims. Early and favorable action is earnestly solicited.


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